

WHAT IS CLAIMED IS

1. A cigarette comprising a tobacco rod and a multi-component filter comprising a bed of adsorbent and ventilation at a location downstream of said bed of adsorbent, said bed of adsorbent and ventilation constructed and arranged to substantially remove of at least one smoke constituent from mainstream tobacco smoke as mainstream smoke is drawn through the filter, and at least one flavor-releasing component constructed and arranged to release flavor to mainstream smoke, the flavor-releasing filter component being located downstream of the said bed of adsorbent in a direction of mainstream smoke drawn through the filter.

2. The cigarette as in claim 1, wherein said bed of adsorbent includes a flavorant-bearing, activated carbon.

3. The cigarette as in claim 2, wherein the flavor-releasing filter component includes a flavorant-bearing filament located downstream of said flavorant-bearing, activated carbon.

4. The cigarette as in claim 3, wherein said bed of adsorbent is disposed in a cavity defined between a tobacco end filter component and a central filter component, said cavity in a condition of being at least 85% filled.

5. The cigarette as claimed in claim 4, wherein said tobacco end filter end component is located adjacent said tobacco rod, said central filter component having an end portion adjacent said of adsorbent, said filtration at a location along said adjacent upstream end portion of said central filter component.

2022201-022201

6. The cigarette as in claim 5, wherein said ventilation in the range of 45 to 55%, and wherein said multi-component filter further comprises mouth end filter component downstream of said central filter component.

7. The cigarette as in claim 6, wherein said tobacco end filter segment, said central filter component, said adsorbent bed and said mouth end filter component are of low particulate filtration efficiency.

8. The cigarette as in claim 7, wherein the level of resistance to draw of said mouth end component and said central filter component is greater than the resistance to draw of said tobacco end filter component.

9. The cigarette as in claim 8, wherein said ventilation comprises a circumferential row of perforations through a tipping paper, said tipping paper attaching said multi-component filter to said tobacco filter rod.

10. The cigarette as in claim 9, wherein said ventilation is located at least 12 mm from a buccal end of the cigarette.

11. The cigarette as in claim 3, wherein the flavor-releasing component includes a cellulose acetate plug with flavorant thereon.

12. The cigarette as in claim 3, wherein the flavor-releasing component includes a cellulose acetate plug surrounded by plug wrap with flavorant on the plug wrap.

13. The cigarette as in claim 3, wherein the adsorbent-bearing segment comprises activated carbon of at least 90 mg in a fully filled condition.

14. The cigarette as in claim 3, wherein the adsorbent bed comprises a high surface area activated carbon; at least 90 to 120 mg or greater of said carbon in a fully filled condition or 160 to 180 mg or greater of said carbon in a 85 filled condition or better.

15. The cigarette as in claim 3, wherein the adsorbent bed comprises a high surface area activated carbon of at least 90 to 120mg in fully filled condition.

16. The cigarette as in claim 1, wherein the multi-component filter includes a component in the form of a plug defining a flow path with a transition from generally circular to generally annular to thereby produce an increased pressure drop and increased dwell time of mainstream tobacco smoke in the filter.

17. The cigarette as in claim 1, wherein the multi-component filter includes a component in the form of a plug providing a flow constriction downstream of the adsorbent bed.

18. The cigarette as in claim 17, wherein the plug providing the flow constriction downstream of the adsorbent bed defines an annular flow path.

19. The cigarette as in claim 17, wherein the plug providing the flow constriction downstream of the adsorbent bed defines a central flow path.

20. The cigarette as in claim 17, wherein the plug providing the flow constriction downstream of the adsorbent bed comprises a concentric filter.

21, A multi-component filter of a smoking article comprising:
an adsorbent bearing segment adjacent an upstream end portion of the filter, the adsorbent bearing segment having a particulate efficiency in the range 10-20% and a lesser RTD;

an RTD-inducing segment including a flow constriction and ventilation, the RTD-inducing segment being located at an intermediate location along said filter, the RTD-inducing segment having a particulate efficiency in the range of 10-20%; and

a flavor releasing segment at a downstream location along said filter, said flavor releasing segment having a particulate efficiency in the range 10-20% and a lesser RTD;

the lesser RTD being less than an RTD of the RTD inducing segment.

22. The multi-component filter as in claim 21, wherein the ventilation is adjacent an upstream end portion of the RTD-inducing segment.

23. A cigarette comprising a tobacco rod and a multi-component filter comprising at least one adsorbent-bearing flavor-releasing segment constructed and arranged to release flavor into mainstream tobacco smoke and to remove at least one smoke constituent from mainstream tobacco smoke as mainstream smoke is drawn through the filter, and at least one additional flavor-releasing segment constructed and arranged to release added flavor to mainstream smoke, the additional flavor-releasing segment being located downstream of the adsorbent-bearing flavor-releasing segment in a direction of mainstream smoke drawn through the filter.

24. The cigarette as in claim 23, wherein the additional flavor-releasing segment includes yarn with flavorant thereon.

25. The cigarette as in claim 23, wherein the adsorbent-bearing flavor-releasing segment includes activated carbon with flavorant on the carbon.

26. The cigarette as in claim 23, wherein the adsorbent-bearing flavor-releasing segment includes three filter components including activated carbon with flavorant on the carbon and cellulose acetate tow components on opposite sides of the activated carbon.

27. The cigarette as in claim 23, including tipping paper surrounding the multi-component filter, and perforations in the tipping paper downstream from the adsorbent-bearing flavor-releasing segment for introducing ambient air into mainstream tobacco smoke drawn through the filter.

28. The cigarette as in claim 23, wherein the additional flavor-releasing segment includes a cellulose acetate plug with flavorant thereon.

29. The cigarette as in claim 23, wherein the additional flavor-releasing segment includes a cellulose acetate plug surrounded by plug wrap with flavorant on the plug wrap.

30. The cigarette as in claim 23, wherein the adsorbent-bearing flavor-releasing segment includes carbon granules with flavorant on the granules.

31. The cigarette as in claim 30, wherein the adsorbent-bearing flavor-releasing segment includes at least 90 to 120 mg or greater of said carbon in a fully filled condition or 160 to 180 mg or greater of said carbon in a 85 filled condition or better.

32. A cigarette comprising a tobacco rod and a multi-component filter comprising:
a bed of adsorbent and a flavor-releasing filter segment located downstream of the bed of adsorbent, said adsorbent being flavor-bearing and comprising high surface area, activated carbon so that as mainstream smoke is drawn through the upstream portion of the filter, gas phase smoke constituents are removed and flavor is released from the

adsorbent bed and thereafter additional flavor is released into the mainstream smoke as it passes through the flavor-releasing filter segment;

filter ventilation arranged at a location spaced downstream from the adsorbent bed so as to lower mainstream smoke velocity through the adsorbent bed; and

said carbon bed comprising at least 90 to 120 mg or greater of said carbon in a fully filled condition or 160 to 180 mg or greater of said carbon in a 85 filled condition or better;

wherein said cigarette achieves a significant reduction in a gas phase constituent of the mainstream smoke.

33. The cigarette as in claim 32, wherein cigarette that achieves significant reductions in gas phase constituents of the mainstream smoke, including 90% reductions or greater in 1, 3 butadiene, acrolein, isoprene, propionaldehyde, acrylonitrile, benzene, toluene and styrene.

34. The cigarette as in claim 32, wherein cigarette that achieves significant reductions in gas phase constituents of the mainstream smoke, including 80% reductions or greater in acetaldehyde and hydrogen cyanide.

35. A cigarette comprising a tobacco rod and a multi-component filter comprising:
a bed of adsorbent comprising a high surface area, activated carbon so that as mainstream smoke is drawn through the upstream portion of the filter, gas phase smoke constituents are removed;

filter ventilation arranged at a location spaced downstream from the adsorbent bed so as to lower mainstream smoke velocity through the adsorbent bed; and

said carbon bed comprising at least 90 to 120 mg or greater of said carbon in a fully filled condition or 160 to 180 mg or greater of said carbon in a 85 filled condition or better; and

said filter ventilation being spaced from a mouth end of said cigarette by at least approximately 12mm;

wherein said cigarette achieves a significant reduction in a gas phase constituent of the mainstream smoke.

36. A multi-component cigarette filter comprising at least one adsorbent-bearing flavor-releasing segment constructed and arranged to release flavor into mainstream tobacco smoke and to remove at least one smoke constituent from mainstream tobacco smoke, and at least one additional flavor-releasing segment constructed and arranged to release added flavor to mainstream smoke, the additional flavor-releasing segment being located downstream of the adsorbent-bearing flavor-releasing.

37. The filter as in claim 36, wherein the additional flavor-releasing segment includes yarn with flavorant thereon.

38. The filter as in claim 36, wherein the adsorbent-bearing flavor-releasing segment includes activated carbon with flavorant on the carbon.

39. The filter as in claim 36, wherein the adsorbent-bearing flavor-releasing segment includes three filter components including activated carbon with flavorant on the carbon and cellulose acetate tow components on opposite sides of the activated carbon.

40. The filter as in claim 36, wherein the additional flavor-releasing segment includes a cellulose acetate plug with flavorant thereon.

41. The filter as in claim 36, wherein the additional flavor-releasing segment includes a cellulose acetate plug surrounded by plug wrap with flavorant on the plug wrap.

42. The filter as in claim 36, wherein the adsorbent-bearing flavor-releasing segment includes carbon granules with flavorant on the granules.

43. The filter as in claim 42, wherein the adsorbent-bearing flavor-releasing segment includes at least 90 to 120 mg or greater of said carbon in a fully filled condition or 160 to 180 mg or greater of said carbon in a 85 filled condition or better.

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